CHERNYY, M.D.; GRNTS, I.P., retsenzent; SEGAL', N.M., redaktor; KOGAN, V.V., tekhnicheskiy redaktor

[Construction and maintenance reeling machines in the silk industry] Ustroistvo i obsluzhivanie motal'nykh mashin shelkovoi promyshlennosti. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva legkoi promyshl.SSSR, 1956. 146 p. (MLRA 10:3)
(Silk manufacture) (Textile machinery)

Deceased

CHERNYY, Mikhail Davydovich [deceased]; TUMAYAN, S.A., retsenzent; SHCHENKOV, S.N., retsenzent; SOKOLOV, A.F., retsenzent; SIMONOV, N.S., kand. tekhn.nauk, red.; SHTEYNGART, M.D., red.; VINOGRADOVA, G.A., tekhn. red.

[Reeling and silk twisting] Kokonomotanie i shelkokruchenie. Moskva, Gizlegprom, 1963. 519 p. (MIRA 16:10)
(Silk manufacture)

ACCESSION NR: AT4006076 S/2535/63/000/001/0103/0137

AUTHOR: Cherny*y, M. G. (Candidate of economic sciences)

TITLE: Provision of special equipment for aircraft engines and method of determination of its optimum level

SOURCE: Moscow. Aviatsionny*y Institut. Trudy*, no. 1, 1963. Puti dal'neyshego sovershenstvovaniya organizatsii i planirovaniya aviatsionnogo proizvodstva, 103-137

TOPIC TAGS: production planning, production equipment, aircraft engine manufacture, aircraft engine plant, aircraft engine, aircraft equipment, engine equipment, engine part

ABSTRACT: Actual experience and performance of several plants engaged in the serial production of airplane engines designated only as A (4th quarter 1956 to 4th quarter 1959), B (4th quarter 1954 to 4th quarter 1959) and C (4th quarter 1952 to 2nd quarter 1959) were analyzed from the standpoint of retooling costs. The analysis employed corrections for several previously ignored factors and indicated that costs of retooling exceeded economically justifiable levels by 16 to 30% in each case. The retooling coefficient $K_o = \frac{O_s}{D_o}$, where O_s is the number of items or objects of special tooling and D_o is the number of original manufactured parts,

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ACCESSION NR: AT4006076

should be supplemented by a coefficient of specific tooling calculable as a monetary cost factor. The latter can be calculated from formula $K_{sp.tool.} = \frac{Z_{tool.\ cum.}}{N_{cum}T_{cum}K_{L}}$, where $K_{sp.\ tool.}$ is the coefficient of specific tooling, expressed as a cost factor reflecting specific expenditures for special tooling, in rubles, calculated per straight time hour of labor cost of the produced item; $Z_{tool.\ cum.}$ is the cumulative cost of special tooling at a given time, in rubles; N_{cum} is the cumulative production of engines at a given time; T_{cum} is the cumulative labor cost of engine manufacture at a given time; and K_L is a correction factor indicating specific labor costs for manufacture of original parts included in the overall labor costs of engine manufacture. The coefficient is computed as a specific cost per ruble of basic wages for production labor. Some dynamics of this factor are presented graphically (see Figs. 1, 2 and 3 in the Enclosure). The above values reflect only the level of retooling, but not its economic efficiency, hence the author offers a method for determining the efficiency of expenditures for special tooling. He develops the following factors:

y as the corrected costs of special tooling per engine

L as the labor cost of production per engine

$F = F_1 + F_2$, where $F_1 = y$ and $F_2 = L$, as a summary curve

and uses these to illustrate optimal tooling efficiency (see Fig. 4 in the

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ACCESSION NR: AT4006076

Enclosure). The serial production analysis referred to is reflected in tabular supplements. Orig. art. has: 8 graphs, 13 formulas and 3 tables.

ASSOCIATION: AVIATSIONNY*Y INSTITUT, MOSCOW (Aviation Institute)

SUBMITTED: 00 DATE ACQ: 16Dec63 ENCL: 04

SUB CODE: IE NO REF SOV: 004 OTHER: 000

Card 3/3

PETROV, Boris Petrovich; STEPANOV, Aleksandr Dmitriyevich; CHERNYY, M.I., redaktor; FRIDKIN, A.M., tekhnicheskiy redaktor

[Operation of electric rolling stock] Upravlenie elektricheskim podvizhnym sostavom. Moskva, Gos. energ. izd-vo, 1956. 304 p. (Electric railroads) (MLRA 9:12)

CHERNYY, M.I., inzhener.

Simple method for determining static moments in finger contactor elements in electrical apparatus. Vest.elektroprom. 27 no.3:26-28 Mr '56. (MLRA 9:12)

1. Zavod "Dinamo" imeni S.M. Kirova.
(Electric contactors)

SOV/110-58-8-19/26

AUTHOR: Chernyy, M.I. (Engineer)

TITLE: ~~Electrical~~ Braking of the Drive for Group Controllers (Elektricheskoye tormozheniye privoda gruppovykh kontrollerov)

PERIODICAL: Vestnik Elektropromyshlennosti,1958,Nr 8,pp 64-68 (USSR)

ABSTRACT: In electric traction, group controllers are used to adjust the voltage on the traction motors during acceleration. It is necessary to be able to stop the shaft of the controller accurately at any desired position. When the controller is driven by an electric motor, electrodynamic braking is generally used but is sometimes supplemented by other forms of braking. This article is on problems of electrodynamic braking in this case. In some cases the controller drives are solidly connected to the motor shaft and it then is particularly important to stop the motor accurately, though a friction coupling may help. A number of types of discontinuous drive have been used; one employed on the French and Belgian railways is illustrated diagrammatically in Fig 1 and another used on the German railways is shown in Fig 2. With drives of this kind

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accurate stopping of the motor is not so essential as in the case of direct coupling, but efficient braking is still required. The method of braking in which the motor armature is short-circuited whilst excitation is maintained independently is then analysed mathematically, and expressions are derived for the braking torque and the braking angles. It is shown that motors used to drive group controllers should have a high induction in the air-gap. The formulae derived here are helpful in determining other design features of the motor. In order to reduce the braking angle, the French and Belgian railways used the braking and supply circuit given in Fig 3. The special feature of this circuit is that on transition to electric braking, which is done by opening the contact K, the armature is short-circuited across the field winding, which till then was carrying current. Thus the motor operates as a short-circuited series generator and the current is maintained both because of the e.m.f. of rotation and because of the energy stored in the field winding,

Electrical Braking of the Drive for Group Controllers

considerably enhancing the braking effect. A brief mathematical analysis of this circuit is given. The effectiveness of the described methods of braking is shown by calculations on the retardation of a universal motor.

There are 3 figures.

SUBMITTED: December 27, 1957

1. Electric motors--Control systems 2. Voltage regulators--Applications
3. Electric motors--Design

TRAKHTMAN, I.M.; IOFFE, A.B.; CHERNYY, M.I.; KUZNETSOV, S.M.; SOLOV'YEV, N. P.; DOROGUSH, G.I.; KAPUSTIN, L.D.; VINBERG, B.G.; RUBCHINSKIY, Z. M.; PETRO, G.A.; ZAGORDAN, N.M.; BRAVIN, V.F.

Multiple-unit rail car with regenerative braking. Prom. energ. 15 no.11:18-19 N '60. (MIRA 14:9)
(Railroad motorcars) (Electric railway motors)

CHERNYY, M.M.

29228

24.4200 1105, 2607, 1327

S/198/61/007/005/008/015
D274/D303

AUTHORS: Ahar'ov, V.A., Ventsel', N.O., and Chernyy, M.M. (Kyyiv)

TITLE: On the general solution, in polar coordinates, of the problem of plate bending

PERIODICAL: Prykladnaya mekhanika, v. 7, no. 5, 1961, 521 - 529

TEXT: In solving, by the method of initial functions, concrete problems of bending of sectorial circular plates, the calculations can be considerably simplified by taking as the initial line, one of the radial boundaries of the plate. The general solution of this problem is considered. The dimensionless radial coordinate

$$\xi = \frac{1}{\lambda} \ln \frac{r}{r_1}, \quad \lambda = \ln \frac{r_2}{r_1} \qquad (1)$$

is introduced; the bending is denoted by w, the angle of rotation of the normal - by ϑ, the bending moments - by M, the torsion mo-

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On the general solution, in ...

ments - by $M_{r\theta}$, the reduced transverse stresses - by V, and the reaction - by R. The radial boundary $\theta = 0$ is taken as the initial line. The complete system of equations which describe the bending, is written in polar coordinates. Further, the canonical equations of the method of initial functions are set up. In this system,

$$L_{sj} = L_{sj}(\alpha, \theta) \qquad \begin{cases} s = w, \vartheta_r, \vartheta, M_r, M, V_r, V, R; \\ j = w, \vartheta, M, V \end{cases} \qquad (11)$$

are operators which have to be determined. For that purpose, three groups of equations are set up. It is found that these operators ought to satisfy conditions:

$$L_{sj}(\alpha, 0) = \begin{cases} 1, & \text{if } j = s \\ 0, & \text{if } j \neq s \end{cases} \qquad (17)$$

$(s, j = w, \vartheta, M, V)$. The expressions for the operators are found in the form of eight formulas

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On the general solution, in ...

$$L_{ww} = \left[1 - \frac{(1-\mu)\,\alpha(\alpha-\lambda)}{2\lambda(\alpha-2\lambda)}\right]\cos\eta\alpha + \frac{(1-\mu)\,\alpha(\alpha-\lambda)}{2\lambda(\alpha-2\lambda)}\cos\eta(\alpha-2\lambda),$$

$$L_{w\theta} = \frac{1}{4}[(1-\mu)\,\alpha + 2(1+\mu)\,\lambda]\frac{\sin\eta\alpha}{\alpha} - \frac{1-\mu}{4}\sin\eta(\alpha-2\lambda),$$

$$L_{wM} = \frac{1}{2\lambda(\alpha-2\lambda)}[\cos\eta(\alpha-2\lambda) - \cos\eta\alpha], \qquad (18)$$

$$L_{wV} = \frac{1}{4(\alpha-\lambda)}\left[\frac{\sin\eta(\alpha-2\lambda)}{\alpha-2\lambda} - \frac{\sin\eta\alpha}{\alpha}\right];$$

$$L_{\theta,w} = \left[1 - \frac{(1-\mu)\,\alpha(\alpha-\lambda)}{2\lambda(\alpha-2\lambda)}\right]\alpha\cos\eta\alpha + \frac{(1-\mu)\alpha^2(\alpha-\lambda)}{2\lambda(\alpha-2\lambda)}\cos\eta(\alpha-2\lambda),$$

$$L_{\theta,\theta} = \frac{1}{4}[(1-\mu)\,\alpha + 2(1+\mu)\,\lambda]\sin\eta\alpha - \frac{1-\mu}{4}\alpha\sin\eta(\alpha-2\lambda),$$

$$L_{\theta,M} = \frac{\alpha}{2\lambda(\alpha-2\lambda)}[\cos\eta(\alpha-2\lambda) - \cos\eta\alpha], \qquad (19)$$

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On the general solution, in ...

$$L_{\theta,V} = \frac{\alpha}{4\lambda(\alpha-\lambda)}\left[\frac{\sin\eta(\alpha-2\lambda)}{\alpha-2\lambda} - \frac{\sin\eta\alpha}{\alpha}\right];$$

$$L_{\theta\omega} = \frac{(1-\mu)\alpha^2-(3-\mu)\lambda\alpha+4\lambda^2}{2\lambda^2(\alpha-2\lambda)}\alpha\sin\eta\alpha - \frac{1-\mu}{2\lambda^2}\alpha(\alpha-\lambda)\sin\eta(\alpha-2\lambda),$$

$$L_{\theta\theta} = \frac{1}{4\lambda}[(1-\mu)\alpha+2(1+\mu)\lambda]\cos\eta\alpha - \frac{1-\mu}{4\lambda}(\alpha-2\lambda)\cos\eta(\alpha-2\lambda),$$

$$L_{\theta M} = \frac{1}{2\lambda^2(\alpha-2\lambda)}[\alpha\sin\eta\alpha-(\alpha-2\lambda)\sin\eta(\alpha-2\lambda)], \qquad (20)$$

$$L_{\theta V} = \frac{1}{4\lambda(\alpha-\lambda)}[\cos\eta(\alpha-2\lambda)-\cos\eta\alpha];$$

$$L_{M,\mu} = \frac{1-\mu}{2\lambda}\frac{\alpha(\alpha-\lambda)}{\alpha-2\lambda}\{[-(1-\mu)\alpha^2+(3-\mu)\lambda\alpha-4\lambda^2]\cos\eta\alpha+$$

$$+(\alpha-\lambda)[(1-\mu)\alpha+4\mu\lambda]\cos\eta(\alpha-2\lambda)\},$$

$$L_{M,\theta} = \frac{1-\mu}{4}(\alpha-\lambda)\{[(1-\mu)\alpha+2(1+\mu)\lambda]\sin\eta\alpha-[(1-\mu)\alpha+$$

$$+4\mu\lambda]\sin\eta(\alpha-2\lambda)\},$$

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On the general solution, in ...

$$L_{M,M}=\frac{\alpha-\lambda}{2\lambda(\alpha-2\lambda)}\{-(1-\mu)\alpha\cos\eta\alpha+[(1-\mu)\alpha+4\mu\lambda]\cos\eta(\alpha-2\lambda)\},$$

$$L_{M,V}=\frac{1}{4}[(1-\mu)\alpha+4\mu\lambda]\frac{\sin\eta(\alpha-2\lambda)}{\alpha-2\lambda}-\frac{1-\mu}{4}\sin\eta\alpha; \quad (21)$$

$$L_{M\omega}=\frac{(1-\mu)\alpha(\alpha-\lambda)}{2\lambda(\alpha-2\lambda)}\{[(1-\mu)\alpha^2-(3-\mu)\lambda\alpha+4\lambda^2]\cos\eta\alpha-$$

$$-(\alpha-\lambda)[(1-\mu)\alpha-4\lambda]\cos\eta(\alpha-2\lambda)\},$$

$$L_{M\vartheta}=-\frac{1-\mu}{4}(\alpha-\lambda)\{[(1-\mu)\alpha+2(1+\mu)\lambda]\sin\eta\alpha-[(1-\mu)\alpha-$$

$$-4\lambda]\sin\eta(\alpha-2\lambda)\},$$

$$L_{MM}=\frac{\alpha-\lambda}{2\lambda(\alpha-2\lambda)}\{(1-\mu)\alpha\cos\eta\alpha-[(1-\mu)\alpha-4\lambda]\cos\eta(\alpha-2\lambda)\}, \quad (22)$$

$$L_{MV}=\frac{1-\mu}{4}\sin\eta\alpha-\frac{1}{4}[(1-\mu)\alpha-4\lambda]\frac{\sin\eta(\alpha-2\lambda)}{\alpha-2\lambda};$$

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On the general solution, in ...

$$L_{V,w} = \frac{1-\mu}{2\lambda}\,\frac{\alpha(\alpha-\lambda)}{\alpha-2\lambda}\,\{[(1-\mu)\alpha^2-(3-\mu)\lambda\alpha+4\lambda^2]\,\alpha\cos\eta\alpha -$$

$$-[(1-\mu)\alpha-2(3-\mu)\lambda](\alpha-\lambda)(\alpha-2\lambda)\cos\eta(\alpha-2\lambda)\},$$

$$L_{V,\theta} = -\frac{1-\mu}{4}(\alpha-\lambda)\{[(1-\mu)\alpha+2(1+\mu)\lambda]\,\alpha\sin\eta\alpha-[(1-\mu)\alpha-$$

$$-2(3-\mu)\lambda](\alpha-2\lambda)\sin\eta(\alpha-2\lambda)\},$$

$$L_{V,M} = \frac{\alpha-\lambda}{2\lambda}\left\{\frac{(1-\mu)\alpha^2}{\alpha-2\lambda}\cos\eta\alpha-[(1-\mu)\alpha-2(3-\mu)\lambda]\cos\eta(\alpha-2\lambda)\right\}, \qquad (23)$$

$$L_{V_r V} = \frac{1-\mu}{4}\,\alpha\sin\eta\alpha - \frac{1}{4}[(1-\mu)\alpha-2(3-\mu)\lambda]\sin\eta(\alpha-2\lambda);$$

$$L_{V_w} = \frac{1-\mu}{2\lambda^2}\,\alpha(\alpha-\lambda)\,\{[(1-\mu)\alpha^2-(3-\mu)\lambda\alpha+4\lambda^2]\sin\eta\alpha -$$

$$-(\alpha-\lambda)[(1-\mu)\alpha+2(1+\mu)\lambda]\sin\eta(\alpha-2\lambda)\},$$

Card 6/10

On the general solution, in ...

$$L_{V\vartheta} = \frac{1-\mu}{4\lambda}(\alpha-\lambda)(\alpha-2\lambda)[(1-\mu)\alpha+2(1+\mu)\lambda][\cos\eta\alpha - \cos\eta(\alpha-2\lambda)], \quad (24)$$

$$L_{VM} = \frac{\alpha-\lambda}{2\lambda^2}\{(1-\mu)\alpha\sin\eta\alpha - [(1-\mu)\alpha+2(1+\mu)\lambda]\sin\eta(\alpha-2\lambda)\},$$

$$L_{VV} = -\frac{1-\mu}{4\lambda}(\alpha-2\lambda)\cos\eta\alpha + \frac{1}{4\lambda}[(1-\mu)\alpha+2(1+\mu)\lambda]\cos\eta(\alpha-2\lambda),$$

$$L_{RW} = \frac{\alpha(\alpha-\lambda)}{2\lambda^2}\left\{\frac{(1-\mu)\alpha^2-(3-\mu)\lambda\alpha+4\lambda^2}{\alpha-2\lambda}\sin\eta\alpha - (1-\mu)(\alpha-\lambda)\sin\eta(\alpha-2\lambda)\right\},$$

$$L_{R\vartheta} = \frac{1}{4\lambda}(\alpha-\lambda)\{[(1-\mu)\alpha+2(1+\mu)\lambda]\cos\eta\alpha - (1+\mu)(\alpha-2\lambda)\cos\eta(\alpha-2\lambda)\},$$

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$$L_{RM} = \frac{\alpha-\lambda}{2\lambda^2(\alpha-2\lambda)}[\alpha\sin\eta\alpha - (\alpha-2\lambda)\sin\eta(\alpha-2\lambda)],$$

On the general solution, in ...

$$L_{RV} = -\frac{1}{4\lambda}[\cos\eta\alpha - \cos\eta(\alpha - 2\lambda)]. \qquad (25)$$

The obtained equations yield the sought-for general solution of the problem. If the plate contour can be described by sufficiently smooth functions, concrete problems can be solved by a method proposed by V.A. Ahar'ov in an earlier article. For hinged radial edges of the plate, this method yields

$$w_0 = 0; \quad M_0 = 0;$$

$$\vartheta_0 = -L_{\omega V}(\theta_0, \alpha)\varphi(\xi); \quad V_0 = L_{\omega\vartheta}(\theta_0, \alpha)\varphi(\xi) - \frac{1}{L_{\omega V}(\theta_0, \alpha)} w_p(\xi, \theta_0); \qquad (27)$$

$$\frac{\sin\eta_0\alpha}{\alpha}\frac{\sin\eta_0(\alpha-2\lambda)}{\alpha-2\lambda}\varphi(\xi) = \frac{1}{\lambda^2}\left[\frac{L_{MV}(\theta_0, \alpha)}{L_{\omega V}(\theta_0, \alpha)} w_p(\xi, \theta_0) - M_{\theta p}(\xi, \theta_0)\right] \qquad (28)$$

and for rigidly clamped edges:

$$w_0 = 0; \quad \vartheta_0 = 0; \qquad (29)$$

$$M_0 = L_{\omega V}(\theta_0, \alpha)\varphi(\xi); \quad V_0 = -L_{\omega M}(\theta_0, \alpha)\varphi(\xi) - \frac{1}{L_{\omega V}(\theta_0, \alpha)} w_p(\xi, \theta_0);$$

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S/198/61/007/005/008/015
D274/D303

On the general solution, in ...

imposes considerable restrictions on the initial functions: their unlimited differentiability is required. In certain cases it is possible to use the apparatus of generalized functions or to express the operators L in the form of integral- or functional operators. There are 3 figures and 7 Soviet-bloc references.

ASSOCIATION: Kyyivs'kyy politekhnichnyy instytut (Kyyiv Polytechnical Institute)

SUBMITTED: December 2, 1960

Card 10/10

IVANOV, A.I.; LEYKIN, A.Ya.; KHUVES, E.S.; CHERNYY, M.S.;
KLEYMAN, L.M., red.

[Machines for overall mechanization of grain loading and unloading operations] Mashiny dlia kompleksnoi mekhanizatsii pogruzochno-razgruzochnykh rabot s zernom. Moskva, Kolos, 1964. 230 p. (MIRA 18:9)

CHERNYY, M. Z.

Name: CHERNYY, M. Z.

Dissertation: The effect of corn and other rations on the egg-laying qualities of chickens and on the incubation properties of chicken eggs

Degree: Cand Agr Sci

Defended at [redacted]: Min Agriculture USSR, Ukrainian Order of Labor Red Banner Agricultural Acad

Publication Date, Place: 1956, Kiev

Source: Knizhnaya Letopis', No 47, 1956

CHERNYI, M.Z., kand. sel'skokhozyaystvennykh nauk, dots.;ROMANOV, B.S., dots.; VERESENKO, K.I., kand. sel'skokhozyaystvennykh nauk

"Fundamentals of animal husbandry"; textbook by N.B. TSirel'son. Reviewed by M.Z. Chernyi, B.S. Romanov, K.I. Veresenko. Zhivotnovodstvo 21 no.11:94-95 N '59 (MIRA 13:3)

1. Dekan zootekhnicheskogo fakul'teta Belotserkovskogo sel'skokhozyaystvennogo instituta (for Chernyy).
(Stock and stockbreeding) (TSirel'son, N.B.)

CHERNYY, N., efreytor

By a new method. Voen. sviaz. 16 no. 6:14 Je '58. (MIRA 11:7)
(Military telegraph--Study and teaching)

YATSKIV, V.G., kand.tekhn.nauk; KAZAROV, G.G., inzh.; CHERNYY, N.A., inzh.

Industrial testing of the "Trepanner" coal cutter-loader. Ugol'. prom. no.3:61-67 My-Je '62. (MIRA 18:3)

AUTHOR: CHERNYY,N.I.

TITLE: Pneumatic Drive for the Gripping of Rod Stock. (Pnevmoprivod dlya zazhima prutkovogo materiala, Russian)

PERIODICAL: Stanki i Instrument, 1957, Vol 28, Nr 7, pp 33 - 35 (U.S.S.R.)

ABSTRACT: Illustration 1 shows a pneumatic driving device which is being used in a Kiev machine factory. The case of the driving gear consists of a cylinder (1) and a 2 flanges (2) and (3). Between the cylinder and the flanges are the rubber membranes (4) and (4a), which form the annular chambers (8) and (9). In the cylinder (1) between the membranes (4) and (4a) are the rings (10), between which a textile ring (11) is pressed which fits into the annular groove of the socket (12), which presses the cams (13). The latter push the clamp (15) through the tube (14) so that the rod stock to be worked is clamped. In order to open the clamps the compressed air is introduced into the left chamber (9), and meanwhile the right chamber is connected with the atmosphere. The cylinder (1), the disk (2), and the rings (10) are made of silumin, and the disk (3) is made of steel. The control of the pneumatic drive is brought about by a special valve case (17) which regulates the conveyance of compressed air. Three tablets emerge from the valve case: the middle tube from the air conduct,

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121-7-16/26

Pneumatic Drive for the Gripping of Rod Stock.

the upper one (19) and the lower one (16) from the air chambers (8) and (9). Further, the operation and the functioning of the valves is described. On illustration 2 a modernized clamping device of the capstan lathe mod. 1336M is shown and described, by which work is made considerably more easy and working time is shortened. Such a clamping device can be used on any lathe or capstan lathe.

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

CHERNYY, N.I.

Modernizing turret lathes for finish machining. Stan.i instr. 29 no.6:36-38 Je '58. (MIRA 11:7)
(Lathes)

CHERNYY, Naum Il'ich; POSTERNYAK, Ye.F., inzh., red.; KUBNEVA, M.M., tekhn.red.

[Modernization of multiple-purpose turret lathes] Modernizatsiia revol'vernykh operatsionnykh stankov. Leningrad, 1959. 13 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Modernizatsiia i remont oborudovaniia, vyp.5). (MIRA 13:3)

(Lathes)

AGAREV, V.A. [Ahar'ov, V.A.] (Kiyev); VENTSEL', N.A. [Ventsel', N.O.] (Kiyev); CHERNYY, N.N. [Chornyi, M.M.] (Kiyev)

General solution of the problem of the bending of a plate in polar coordinates. Prykl.mekh. 7 no.5:521-529 '61. (MIRA 14:10)

1. Kiyevskiy politekhnicheskiy institut.
(Elastic plates and shells)

VERSHININA, M.P., REGEL', V.R., CHERNYY, N.N.

Effect of UV radiation on the kinetics of flow and destruction of caprone fibers.

Report presented at the 13th Conference on high-molecular compounds Moscow, 8-11 Oct 62

L 12851-63 EWP(j)/EPF(c)/EWT(m)/BIS/ES(v) AFFTC/ASD Pc-4/Pr-4/
Pe-4 RM/WW
ACCESSION NR: AP3001168 S/0190/63/005/006/0925/0931

AUTHOR: Regel', V. R.; Cherny*y, N. N.

TITLE: Effect of ultraviolet irradiation on the kinetics of creep and breakdown of capron fibers

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 5, no. 6, 1963, 925-931

TOPIC TAGS: ultraviolet irradiation, kinetics of flow, breakdown of fibers, capron fibers, creep rate of fibers, polymer creep, elastic deformation

ABSTRACT: The present investigation was aimed at finding out whether a relationship existed between the rate of polymer deformation and polymer destruction, the yardstick for the former being its "set creep" rate. Capron threads, consisting of 80 monofibers of 20 Micron diameter, were subjected to stretching by means of various loads, with and without irradiation by ultraviolet light. The measurements consisted in determining the longevity of the samples (breaking point) as well as registering the rate of their "set creep." It was found that the product of these two values remains constant. It is concluded that the change in the "set creep" rate of oriented capron fibers is caused by a change in the destruction rate of the chemical bonds. The authors thank Zhurkov, S. N. for his continuous interest in

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L 12851-63
ACCESSION NR: AP3001168

this work and for valuable remarks in the discussion of results. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physical-Technical Institute, Academy of Sciences SSSR)

SUBMITTED: 26Dec61	DATE ACQ: 01Jul63	ENCL: 01
SUB CODE: 00	NO REF SOV: 017	OTHER: 000

Card 2/3

ACCESSION NR: AP4043783 S/0190/64/006/008/1450/1457

AUTHOR: Vershinina, M. P.; Regel', V. R.; Cherny^y, N. N.

TITLE: Effect of U-V irradiation on polymer strength

SOURCE: Vy^sokomolekulyarny^ye soyedineniya, v. 6, no. 8, 1964, 1450-1457

TOPIC TAGS: polymer strength, mechanical stress, UV irradiation, polymer failure, polymer degradation, capron fiber

ABSTRACT: The dependence of the strength of polymers subjected simultaneously to mechanical stress and U-V irradiation on temperature and time has been studied for capron fibers. The study is based on principles developed by S. N. Zhurkov. Zhurkov has suggested that the mechanical failure of polymers is a result of the thermal degradation of macromolecules which is activated by mechanical stresses. He has also established the formula

$$\tau = \tau_0 e^{(U_0 - \gamma\sigma)/RT}$$

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ACCESSION NR: AP4043783

for the rupture life (τ) of specimens at temperature T and under stress σ; τ_0, U_0, and γ are constants having specific physical meaning. The rupture life of capron fibers was studied under various conditions. The results of the experiments, given in Figs. 1 and 2 of the Enclosure, show the effect of U-V irradiation on the fiber strength and indicate that in the presence of such irradiation the dependence of the fiber strength on temperature and time cannot be described by Zhurkov's formula with the usual values of the coefficients τ_0, U_0, and γ. The effect of U-V irradiation is explained on the basis of further experiments, analysis of Zhurkov's formula, and the assumption that the failure of fibers is the result of the combination of two processes: degradation in accordance with Zhurkov's formula and degradation caused by irradiation. "The authors express their gratitude to S. N. Zhurkov for his interest in the study and for his valuable advice." Orig. art. has: 6 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe (Physico-technical Institute)

SUBMITTED: 26Sep63 ATD PRESS: 3088 ENCL: 02

SUB CODE: OC, OP NO REF SOV: 010 OTHER: 001

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000308710011-0"

ACCESSION NR: AP4043783 ENCLOSURE: 01

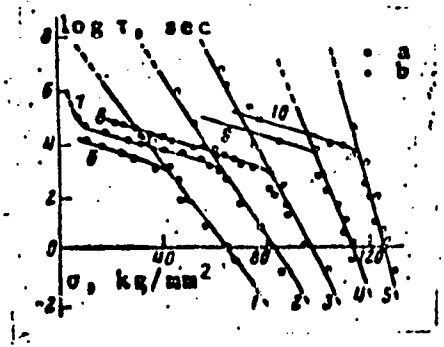

Fig. 1. Dependence of the logarithm of the rupture life log τ of capron fibers on stress σ, with and without U-V irradiation at different temperatures

1, 6 - 130C; 2, 7 - 80C; 3, 8 - 25C; 4, 9 — -60C; 5, 10 - -110C; a - without irradiation; b - with irradiation.

Card 3/4

ACCESSION NR: AP4043783 ENCLOSURE: 02

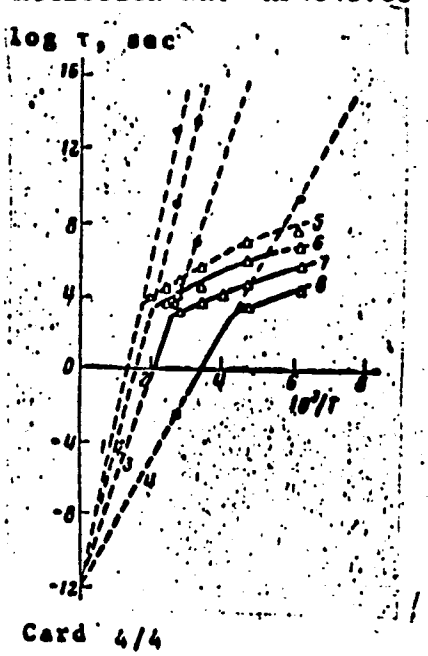

Fig. 2. Dependence of the logarithm of the rupture life log τ on reversed temperature 1/T of capron fibers at various stresses (kg/mm²)

1, 5 - 0; 2, 6 - 25; 3, 7 - 60; 4, 8 - 100

Card 4/4

REGEL', V.R.; CHERNYY, N.N.

Lasting quality of polymeric fibers and films in a state of stress under the action of ultraviolet radiation. Khim. volok. no.6: 50-54 '65. (MIRA 18:12)

1. Fiziko-tekhnicheskiy institut im. A.F. Ioffe AN SSSR.
Submitted July 9, 1964.

L 37204-66 EWT(m)/EWP(j)/T IJP(c) WW/RM
ACC NR: AP6012420 (A) SOURCE CODE: UR/0183/65/000/006/0050/0054

AUTHOR: Regel', V. R.; Chernyy, N. N.

ORG: Physical-Technical Institute im. A. F. Ioffe AN SSSR (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Durability of polymeric fibers and films under stress when subjected to ultraviolet irradiation

SOURCE: Khimicheskiye volokna, no. 6, 1965, 50-54

TOPIC TAGS: synthetic fiber, uv irradiation, light radiation effect, polymer physical chemistry, rupture strength, mechanical stress, mechanical fatigue, ~~empirical equation~~.

ABSTRACT: The effect of ultraviolet light on the strength of stressed polymeric fibers and films was examined. 16 different polymeric materials exhibited identical characteristics with respect to the relationship of their durability when under stress and subjected to uv light. An empirical equation was found. This relationship is explained by the superimposition of two breakdown processes--a fluctuation process and the process of destruction due to the action of light.

Card 1/2

UDC: 677.4:539.1.043

SIPOVSKAYA, Irina Vasil'yevna; CHERNYY, N.Ye., red.; VOLCHOK, K.M., tekhn. red.

[Statistics of river transportation] Statistika rechnogo transporta. Izd. 2., perer. Leningrad, Leningr. otd-nie, 1961. 343 p. (MIRA 14:6)
(Inland water transportation—Statistics)

NIKITIN, Gennadiy Mikhaylovich; ALEKSEYEV, I.A., retsenzent; USTINOV, V.I., retsenzent; CHERNYY, N.Ye., red.; VOLCHOK, K.M., tekhn. red.

[Fundamentals of safety and fire prevention techniques]Osnovy tekhniki bezopasnosti i protivopozharnoi tekhniki. Leningrad, Izd-vo "Rechnoi transport," 1961. 423 p. (MIRA 15:10)

(Industrial hygiene) (Fire prevention)

IRKHIN, Aleksandr Petrovich, kand. tekhn.nauk; YERPICHEV, Mikhail Ivanovich, inzh.; TSYPIN, Yakov Yevgen'yevich, inzh.; CHERNYY, N.Ye., red.; VOLCHOK, K.M., tekhn. red.

[The economics and organization of transportation via a self-propelled merchant marine fleet] Ekonomika i organizatsiia perevozok samokhodnym gruzovym flotom. Izd.2., ispr. i dop. Moskva, Izd-vo "Rechnoi transport" 1963. 114 p. (MIRA 16:10)

(Inland water transportation)

CHERNYY, N. Ye.

"Ultrastrukturelle Veranderungen des Hornhautepithels bei der Regeneration."

report submitted to 3rd European Regional Conf, Electron Microscopy, Prague, 26 Aug-3 Sep 64.

L 65026-65 EWT(l)/EWP(e)/EPA(s)-2/EWP(m)/EWP(i)/EPA(w)-2/T/EWA(c) IJP(c) JD/GG/WB

ACCESSION NR: AP5022251 UR/0363/65/001/007/1049/1050
679.88:548.55

AUTHOR: Somov, A. I.; Skorobogatov, B. S.; Kurilo, Yu. P.; Chernyy, O. V.

TITLE: Growing corundum single crystals by Czochralski technique in vacuum

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 7, 1965, 1049-1050

TOPIC TAGS: corundum, aluminum oxide, alumina, aluminum compound, single crystal, single crystal growth, single crystal growing, crystallization, etched crystal, crystal dislocation, corundum single crystal, melt crystallization, Czochralski technique, crystal dislocation structure

ABSTRACT: The Czochralski technique has been applied to grow corundum single crystals more perfect than crystals grown by other techniques (Verneuil, hydrothermal, fluxed melt). The starting material, aluminum oxide powder in briquet form, was sintered and smelted to

Card 1/2

L 65026-65

ACCESSION NR: AP5022251

4

minimize the gas evolution at the start of crystal pulling operation. The ingots were remelted in tungsten crucibles in vacuum and the crystals were pulled at the optimum rate of 1.5 cm/hr. Dislocation structure of the crystals was studied by x-ray and micrographic methods. The average density of dislocations (etch pits) on the (0001) plane was found to be two orders of magnitude lower than in the crystals grown by the Verneuil technique. The slip lines observed on the (0001) plane presumably were developed in the process of cooling. Orig. art. has: 2 figures.

[JK]

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk UkrSSR, Khar'kov (Physicotechnical Institute, AN UkrSSR)

SUBMITTED: 13Mar65 ENCL: 00 SUB CODE: SS,GP

NO REF SOV: 001 OTHER: 005 ATD PRESS: 4082

Card 2/2

SOMOV, A.I.; SKOROBOGATOV, B.S.; KURILO, Yu.P.; CHEPNYY, O.V.

Growing of corundum single crystals in vacuo according to the Chokhral'skii method. Izv.AN SSSR. Neorg. mat. 1 no.7:1049-1050 Jl '65. (MIRA 18:9)

1. Fiziko-tekhnicheskiy institut AN Ukr.SSR, Khar'kov.

CHERNYY, P.; KHMELEVA, V.I., redaktor; KRYNOCHKINA, K.V., tekhnicheskiy redaktor.

[My work practice on an excavator] Moi opyt raboty na ekskavatore. Moskva, Vses. uchebno-pedagog. izd-vo Trudreservizdat, 1954. 29 p. (Excavating machinery) (MLRA 7:8)

PARSHIN, A.A., insh.; CHERNYY, P.I., insh.

Mechanical slag removal for high-capacity boilers. Energomashinostroenie 4 no.12:4-8 D '58. (MIRA 11:12)
(Boilers)

TSOKOLENKO, D.T.; CHERNYY, P.V., veterinarnyy vrach

Identification and determination of the pathogenic properties of Bacillus anthracis by means of a modified biological test. Veterinariia 39 no.8:77-78 Ag '62. (MIRA 17:12)

1. Zaveduyushchiy Berdichevskoy veterinarno-bakteriologicheskoy laboratorii, Zhitomirskoy oblasti (for TSokolenko).

CHERNYY, R.F., inzh.

Continous action water outlet from bitumen storage plants.
Avt.dor. 22 no.6:29 Je '59. (MIRA 12:9)
(Bitumen--Storage) (Drainage)

CHERNYY, R.I.

PHASE I BOOK EXPLOITATION SOV/4054

Akademiya nauk SSSR. Institut nauchnoy informatsii

Khimicheskaya promyshlennost' SSSR (The Chemical Industry of the USSR) Moscow, Goskhimizdat, 1959. 457 p. Errata slip inserted. 4,100 copies printed.

Sponsoring Agency: USSR. Gosudarstvennyy nauchno-tekhnicheskiy komitet.

Ed.: R. S. Romm; Tech. Ed.: P. V. Pogudkin; Editorial Board: A. P. Vinogradov, S. I. Vol'fkovich, N. M. Zhavoronkov, M. I. Ivanov, V. S. Kiselev, I. A. Lunacharskaya (Scientific Secretary), S. S. Medvedev, B. D. Mel'nik, A. N. Planovskiy, A. Ya. Ryabenko (Chief Ed.), and A. V. Topchiyev.

PURPOSE: This book is intended for the personnel of the chemical industry. It will be of interest to the general reader interested in the development and structure of the Soviet chemical industry.

Card 1/6

The Chemical Industry of the USSR SOV/4054

COVERAGE: This book contains 18 articles on various aspects of the Soviet chemical industry. Among the developments in the production of raw materials for the manufacture of chemical products discussed are: 1) the use of raw materials synthesized from natural gas and petroleum to replace food products in the production of synthetic rubber, alcohol, detergents, etc.; 2) the production of acetylene from natural and petroleum gases for the synthesis of vinyl chloride, acrilonitrile, chloroprene, trichloroprene, 1, 4-butadiene, and other organic substances, based on methods developed by M. G. Kucherov, A.Ye. Favorskiy and others; 3) the production of acetylene from saturated hydrocarbons by cracking methane (and its homologs) at 1450° in an electric arc between two special electrodes in a gas reactor, by pyrolysis (thermal oxidation) of methane in an improved furnace designed by B. S. Grinenko, by high-temperature pyrolysis of propane and butane in tubular furnaces, or by other methods of producing acetylene for the production of synthetic rubber, ethyl alcohol, and other organic substances; 4) the synthesis of halogen derivatives of aliphatic hydrocarbons for the production of solvents, refrigerants, pharmaceutical products, etc., and 5) the production of rubber accelerators from nitrogen-containing aliphatic hydrocarbons. The history of plastics production in the Soviet Union is reviewed, and names, locations, and products of plants as well as the names of outstanding personalities in the field are given. The technical level and prospects of further development of different branches of the plastics industries are also discussed

Card 2/6

along with methods of manufacturing plastic articles. A special apparatus designed by Ye. M. Mogilevskiy and designated "VA" which permits preparation of viscose solution in one operation is discussed. It is being used to replace the complex, conventional equipment with great savings in space. General trends in the technology of synthetic fiber production are also discussed. A historical review of synthetic rubber production and the achievements of outstanding Soviet scientists in this field are given as well as names, locations and products of synthetic rubber plants. Rubber production and the manufacture of rubber goods are similarly reviewed. Statistical data and outstanding personalities in the development of the aniline dyes, paints and lacquers, mineral fertilizers, insecticides and fungicides, sulfuric acid, soda, mineral salts, radioactive and stable isotopes, and chemical reagents industries are given. Catalytic processes and automation and automatic devices used in the chemical industry are also discussed. Thirty-eight photographs included in the book show outside and interior views of some Soviet chemical industry plants, as well as their manufacturing, material-handling and laboratory equipment. Numerous personalities and facilities are identified in the body of the text. References accompany individual articles.

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Card 6/6

CHERNYY, S.

"Free nutation of the earth. p. 57, (PUBLICATIONS, Vol. 6, 1954, Beograd, Yugoslavia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 4, Apr 1955, Uncl.

CHERNYY, S.D.

Stability of eclipsing stars. Publ.Kiev.astron.obser.no.2:47-69 '48.

(MLRA 7:2)

(Stars, Double)

Cernyi S. D. The motion of material points under the influence of forces imparting to them an acceleration

[illegible] Akad. Nauk SSSR. Prikl. Mat. Mekh. [illegible]

orbites ab[illegible] R. G. Langeb[illegible]
holm, 1894].

Vol 13 No. 5

Source: Mathematical Reviews

CHERNYY, S.I.

[Experimental investigation of the problem of functional changes; the problem of experimental changes of the exterior and interior in animals] Eksperimental'noe issledovanie problemy funktsional'nykh izmenenii; problema eksperimental'nogo izmeneniia ekster'era i inter'era zhivotnykh. Zool. Zh., Moskva 29 no.2:164-175 Mr-Ap '50.

1. Department of Zoology and Darwinism, Kiev Order of Red Banner of Labor Agricultural Institute.

CHERNIY, S.I.

Adaptational relations between the shoulder girdle, operculum, and adjacent elements in the respiratory and feeding functions of osseous fishes. Nauk.zap.Kiev.un. 13 no.6:147-171 '54. (MLRA 9:10)

(Fishes--Anatomy)

CHERNYY, S.I.

Effect of sudden cessation of systematic muscular activity on the condition of the internal organs in an animal organism. Fiziol. zhur. [Ukr.] 2 no.1:71-76 Ja-F '56. (MLRA 10:1)

1. Ukrains'ka ordena Trudovogo Chervonogo Prapora sil'skogospodars'ka akademiya
(VISCERA) (EXERCISE)

CHERNYY, S.S.

"One Dimensional Unsteady Flow of a Perfect Gas with Strong Shock Waves"

Doklady Akad. Nauk 107, 1956 pp 657-660

BULATKIN, I.K.; ZAGORUYKO, A.A.; KHARLANOV, V.A.; CHERNYY, S.Ya.

Barrier flooding of level B_1 of the Bakhmet'yevo field. Neftepromm. delo no. 2:14-19 '64. (MIRA 17:4)

1. Zhirnovskoye neftepromyslovoye upravleniye i Volgogradskiy nauchno-issledovatel'skiy institut neftyanoy i gazovoy promyshlennosti.

CHERNYY, V. A.

O Prirode pochevennoy Kislotnosti. (On the nature of soil acidity, ... Moskva, Izd-vo anademii Naum, 1947, At head of Title: Anademiya Naun SSSR. Institut Pochvovedeniya.

Table of Contents: 1. The existing conception about the nature of soil adidity. 2. Methods to determine acids and various kinds of aluminum in solutions. 3. Hydrolysis of aluminum salts and ionic structure of aluminum salts and ionic structure of aluminum in water solutions, etc.

CHERNYY, V.A., professor, doktor sel'skokhozyaystvennykh nauk.

Cultivation of spring wheat in the North. Nauka i zhizn' no.9: 43-46 S '47. (MLRA 9:5)

(Siberia--Wheat)

[redacted], V. A.

Biologicheskiye osobennosti yarovoy pshenitsy i vozdelyvaniye yeye v usloviyakh severa, (Biological Characteristics of spring wheat and its cultivation under conditions of the north) Moskva, Izd-vo Akademii Nauk SSSR, 1950

201 P. Illus., Maps, Tables. At head of Title: Akademiya Nauk SSSR. Pochvenno Biologicheskaya Laboratoriya.

"Literatura": P. 193-(200).

USSR/Cultivated Plants - Fodders. II.

Abs Jour : Ref Zhur - Biol., No 10, 1958, 44170

Author : Chernyy, V.A.

Inst : Sakhalin Complex Scientific Research Institute, AS USSR

Title : On the Double Harvesting Winter Rye Crop/

Orig Pub : Soobshch. Sakhalinsk. kompleksn. n.-i. in-ta AN SSSR, 1956, vyp. 4, 12-16.

Abstract : Two rye varieties - Tulun and Kazanskaya were tried in the experimental field of the Sakhalin affiliate of the Academy of Sciences of USSR. In mowing the sowings during the shooting stage a considerable grain crop (17.2 centners/ha) and straw of good quality were obtained on three year average along with a high yield of green bulk (9 t/ha). The best cutting height is 15 cm.

Card 1/2

CHERNYY, V.A., doktor sel'skokhozyaystvennykh nauk (Sakhalin)

Feed supply on Sakhalin. Nauka i zhizn' 23 no.2:48-49 F '56.
(MLRA 9:5)

(Sakhalin--Feeding and feeding stuffs)

CHERNYY, V.A.

CHERNYY, V.A.; MAYOROVA, A.R.

Effect of mineral fertilizers and seeding rates on oat yields and lodging resistance (sturdiness of straw). Soob. Sakhal. kompl. nauch.-issl. inst. AN SSSR no.5:112-117 '57. (MIRA 10:12)
(Sakhalin--Oats) (Fertilizers and manures)
(Plants, Space arrangement of)

STOROZHENKO, Yuriy Georgiyevich; CHERNYY, V.A., doktor sel'skokhoz.nauk, otv.red.; CHUMAYEVSKAYA, M., red.; GUSEVA, I., tekhn.red.

[Biological characteristic and cultivation of potatoes on Sakhalin] Biologicheskie osobennosti i vozdelyvanie kartofelia na Sakhaline. Moskva, Izd-vo Akad.nauk SSSR, 1959. 159 p. (MIRA 13:1)

(Sakhalin--Potatoes)

CHERNYY, V.A.

Some properties of spring grain crops on Sakhalin. Soob.Sakhal. kompl.nauch.-issl.inst.AN SSSR. no.8:71-75 '59. (MIRA 14:4)

(Sakhalin--Grain)

SHOYKHET, M.I.; CHERNYY, V.A.; NAKONECHNYY, B.I.

Determining the active acidity in fermentation industries at the control level. Spirt. prom. 27 no.6:44 '61. (MIRA 14:9)
(Fermentation--Equipment and supplies)

SKOBETS, Ye.M.; CHERNYY, V.A.

Solid-phase reactions in amperometric titration. Zav. lab. 31 no.8:937-939 '65. (MIRA 18:9)

1. Ukrainskaya sel'skokhozyaystvennaya akademiya.

USSR / Cultivated Plants. Medicinal Plants. Essential-Oil Plants. Poisonous Plants. M

Ref Zhur - Biologiya, No 6, 1959, No. 25105

Author : Balandin, D. A.; Chernyy, V. F.
Inst : Far-Eastern Branch AS USSR
Title : Ginseng Extracts

Orig Pub : Soobshch. Dal'nevost. fil. AN SSSR, 1958, vyp 9, 99-108

Abstract : Investigations of the Far-Eastern Branch AS USSR indicated that the number of extractive substances in ginseng is not constant and depends not only upon the root's part but also upon the method of extraction and the size of the specimens' grind. Water (up to 50%) and 20% ethyl

Card 1/3

CHERNYY, V.F.

Effect of dragline bucket vibration on booms. Sbor.st.Ural. politekh.inst. no.65:26-38 '58. (MIRA 12:4)
(Excavating machinery)

CHERNYY, V.F.

Dynamic loads in pulling a dragline bucket from the ground. Izv. vys. ucheb. zav.; gor. zhur. no. 12:105-114 '59. (MIRA 14:5)

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova. Rekomendovana kafedroy teoreticheskoy mekhaniki.
(Mining machinery)

CHERNYY, V.F., starshiy prepodavatel'

Problem of pulling the bucket of a dragline. Izv. vys. ucheb. zav.; gor. zhur. no.11:123-130 1959. (MIRA 14:5)

1. Ural'skiy politekhnicheskiy institut imeni S. M. Kirova. Rekomendovana kafedroy teoreticheskoy mekhaniki.
(Excavating machinery)

KAZAK, Sergey Antonovich. Prinimali uchastiye: CHERNYY, V.F.; KOGAN, L.A.; KHRISANOV, M.I. KUBACHEK, V.R., inzh., retsenzent; PARNITSKIY, A.B., kand.tekhn.nauk, red.; MARCHENKOV, I.A., tekhn.red.

[Stresses and loads in operating machines; cranes and excavators] Usiliia i nagruzki v deistvuiushchikh mashinakh; krany i ekskavatory. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 167 p. (MIRA 14:4)
(Cranes, derricks, etc.) (Excavating machinery)

CHERNYY, V.F.

Action of the hoisting cable on the dragline-excavator jib. Trudy Ural.politekh.inst. no.104:124-138 '61. (MIRA 14:6)
(Excavating machinery)

SOKOLOV, V.M., dots., kand. fiz.-mat. nauk; CHERNYY, V.F., retsenzent; KLINSKIKH, N.A., nauchn. red.

[Problems on theoretical mechanics, manual] Sbornik zadach po teoreticheskoi mekhanike; uchebnoe posobie. Sverdlovsk. Izd. Ural'skogo politekhn. in-ta im. S.M. Kirova. Pt.1. 1964. 74 p. (MIRA 17:11)

SUTORIKHIN, V.N., kand. tekhn. nauk, dotsent; CHERNYY, V.F., kand. tekhn. nauk, dotsent

Dynamic loads acting on metal structures of cranes with shafts. Izv. vys. ucheb. zav.; mashinostr. no.9:119-123 '65. (MIRA 18:11)

Lab Metallophysics. Acad Sci Ukr. SSR

CHERNYY, V.G.

USSR/Physical Chemistry - Crystals. B-5

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7003.

Author : V.G. Chernyy
Inst :
Title : Fine Crystalline Structure of Some Nickel Alloys.

21-4-11/24

TITLE: Study of Decomposition Processes of a Supersaturated Solid Solution of Nickel - Chromium - Titanium - Aluminum (Vyvchennya protsesiv rozpadu peresychenogo tverdoho rozchynu nikel'-khrom - tytan - alyuminiy)

decomposition of both, tempered and deformed alloys.

Curves representing the temperature-dependence of the changes in dimensions of the regions of coherent scattering of the α'-phase were obtained and explained.

It was shown that an increase in hardness during alloy aging is determined by the formation of a fine submicroscopic crystal line structure and the concentrational heterogeneity of the alloy as a result of the decomposition processes of a solid solution. The increase of hardness is not connected with changes in the magnitude of distortions of the second kind and the size of mosaic units of the gamma solid solution.

The article contains 2 graphs.
There are 10 references all Slavic.

Card 2/3

SOV/137-58-11-23429 D

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 227 (USSR)

AUTHOR: Chernyy, V. G.

TITLE: A Study of Processes of Hardening and Softening of Certain Nickel Alloys (Izucheniye protsessov uprochneniya i razuprochneniya nekotorykh splavov na nikelevoy osnove)

PERIODICAL: Author's dissertation for the degree of Technical Sciences, presented to the Dnepropetr. metallurg. in-t (Dnepropetrovsk Institute of Metallurgy), Dnepropetrovsk, 1958

ABSTRACT: Mosaic structure blocks and Type-II lattice distortions occurring in Ni-Cr alloys during processes of hardening and softening were studied together with the microstructure, the electrical conductivity, and the hardness R_A at temperatures ranging from 20 to 1000°C. The magnitude of Type-II distortions (Δ a/a) and the dimensions of the mosaic structure blocks (D) were determined from the width and shape of the reflexes (111) and (331). In the case of alloys susceptible to aging, the variations in parameters of the matrix lattice and of the second phase were determined. It was established that the greatest

Card 1/2 increase in mechanical strength during deformation and maximum

SOV/137-58-11-23429 D

A Study of Processes of Hardening and Softening of Certain Nickel Alloys

preservation of hardening during heating may be achieved (at equal atomic concentration) by means of alloying the Ni-Cr alloy with Ti+Al, Ti, or Al in that order. In the case of single-phase alloys, it is demonstrated that the process of hardening is accompanied by an increase in distortions of types II and III and by a reduction of D. An increase in the strength of alloys susceptible to aging is connected with the appearance of a fine, submicroscopic nonhomogeneity and a concentration nonuniformity resulting from the precipitation of the second, finely dispersed phase in the process of decomposition of a solid solution. It is noted that deformation has an accelerating effect on the decomposition of hardened alloys.

ASSOCIATION: Dnepropetr. metallurg. in-t (Dnepropetrovsk Institute of Metallurgy), Dnepropetrovsk

A. B.

Card 2/2

KURDYUMOV, G.V.; BIL'DZYUKEVICH, I.A.; KHANDROS, A.G.; CHERNYY, V.G.

Changes of the fine crystalline structure during the aging of nickel and iron-nickel-base alloys. Issl. po zharopr. splav. 3:183-188 '58. (MIRA 11:11)

(Nickel alloys--Metallography)

KURDYUMOV, G.V. [Kurdiumov, H.V.]; BIL'DZYUKEVICH, I.A. [BIL'DZIUKEVYCH, I.A.]; KHANDROS, L.G. [Khandros, L.H.]; CHERNYY, V.G. [Chornyi, V.H.]

Change in the fine crystalline structure of some heat-resistant alloys during aging [with summary in English]. Ukr.fiz.zhur. 3 no.4:495-505 Jl-Ag '58. (MIRA 11:12)

1. Institut metallofiziki AN USSR.
(Heat-resistant alloys--Metallography)

SOV/126-7-3-22/44

18.1250

AUTHORS: Arbuzov, M. P. and Chernyy, V. G.

TITLE: Influence of Aluminium and Titanium on the Hardening and Softening of Nichrome-Type Alloys (Vliyaniye alyuminiya i titana na uprochneniye i razuprochneniye splavov tipa nikhrom)

PERIODICAL: Fizika metallov i metallovedeniye, Vol 7, Nr 3, pp 438-442 (USSR) 1958

ABSTRACT: The aim of this work was to study the influence of aluminium and titanium on the change of the fine crystal structure (secondary distortions and mosaic block dimensions) and the mechanical properties (hardness) in the course of hardening and softening of Ni-Cr alloys. Ni-Cr-Al, Ni-Cr-Ti, and Ni-Cr-Al-Ti alloys were chosen for investigation. The chemical composition of these alloys is given in Table 1. Alloys 4 and 5 are of the age-hardening type. Specimens were cut from rods, annealed at 1050 - 1080°C and furnace cooled. The slow cooling brought about equilibrium conditions in the age-hardening alloys. The homogenized specimens were deformed by 80% by compression along one axis. From the plates obtained

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Influence of Aluminium and Titanium on the Hardening and Softening of Nichrome-Type Alloys

by deformation specimens were prepared for X-ray exposure and hardness testing. The alloys were softened at 400 - 800°C. The extent of secondary distortion $\Delta a/a$ and the block size D were determined from the width of the line (Refs.1, 3 and 4) and by a harmonic analysis of the X-ray pictures of the investigated alloys (Ref.5, 6). The values for $\Delta a/a$ and D obtained by a calculation according to the two methods are in good agreement. Hence their difference was not taken into consideration in the discussion of the results of this work. The hardness was tested on a Rockwell machine with a diamond cone at a load of 60 kg (scale A). X-ray pictures of specimens which had not been softened, and those which had, were obtained in a copper irradiation in cameras having a drum diameter of 150 mm. The specimens were rotated during exposure. In Figs.1, 2 and 3 curves for the change in secondary lattice distortion, block dimensions and hardness H_{R_A} of the hardened alloys in relation to heating temperature

Card 2/4 have been plotted from data given in Table 2. The greater

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the aluminium content in Ni-Cr alloys, the greater the lattice distortions and hardness. Conversely, a very large block size is observed in an alloy with a lower aluminium content. The same mechanism holds good for alloys with two supplementary alloying elements - aluminium and titanium, see Table 3. The authors arrived at the following conclusions: The fact that the secondary lattice distortions and block dimensions obtained from the width and from the harmonic analysis of the line are in good agreement with each other shows that if the function of the distribution intensity of the transverse line is correctly chosen, the line width method is as accurate as the harmonic analysis method. A comparison of the results obtained, with analogous data for nichrome (80% Ni, 20% Cr) leads to the conclusion that alloying nichrome with aluminium and titanium results in greater strengthening after deformation and displaces softening processes to the region of higher temperatures. The latter is evidently associated with the fact that aluminium and titanium increase the interatomic bond forces

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in the lattice of a solid solution.
There are 3 figures, 3 tables and 8 Soviet references.

ASSOCIATION: Institut metallofiziki AN USSR (Institute of Metal Physics, Ac. Sc., Ukrainian SSR.

SUBMITTED: June 18, 1957

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18.1250
18.7500

66893
SOV/126-8-1-10/25

AUTHOR: Chernyy, V.G.

TITLE: Changes of Fine Crystal Structure in the Decomposition of a Super-Saturated Nickel-Chromium-Aluminium-Titanium Solid Solution

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 1, pp 66-74 (USSR)

ABSTRACT: For his investigation of changes in fine structure and hardness during the decomposition of a heat-resisting nickel-chromium alloy the author has used one with 19.55% Cr, 0.59% Al, 2.38% Ti, 0.035% C, remainder Ni. By suitable deformation and heat treatment structures giving continuous lines on X-ray diagrams were obtained. Hardened blanks were heated for four hours at 400 - 950°C and for times up to 25 hours at 700 and 800°C. Final heat treatment gave specimens suitable for the investigation, using electrolytic solution, X-ray diffraction and hardness determination. It was found that in the decomposition of the hardened alloy only an intermetallic phase with a face-centered cubic lattice separates, the lattice parameter being greater than that of the main solid solution. The α'-phase could be isolated after

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heating the alloy for four hours at 700-910°C. After heating at 700-850°C the Ni_3 (Al, Ti)-phase blocks get larger, shrinking after heating at 900 and 910°C to attain a size with the latter close to that of α'-phase blocks in the alloy heated at 700°C. The author suggests a possible explanation for the intermetallic-phase block-size decrease. Study of the alloy fine structure showed that, after heating at 500-600°C, an increase in the value of the second-order distortion occurs which could be due to the appearance of elastic distortions of the lattice and to concentration gradients in the basic solid solution: the latter explanation is favoured by the author. The coherent-scattering regions of the main solution do not change in size or heating to 850°C. From his results and published (Ref 14) data on changes in bonding forces and third-order distortion the author concludes that increases in the alloy hardness are not connected with the formation of second-order distortions of the crystal lattice, or with changes in lattice bond strength of the main solid solution; nor is it associated

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with changes in the coherent-scattering zones. He attributes hardness increases to the formation of a fine submicroscopic and concentration heterogeneity as a result of the decomposition processes. Figs 1 and 2 show as functions of time the size of the α'-phase blocks (scale D), the crystal-lattice parameter (scale a) and hardness (scale H_{R_A}) of the alloy at 700 and 800°C, respectively. Fig 3 shows various characteristics of the alloy as functions of temperature from room to 900°C. There are 3 figures, 4 tables and 16 Soviet references.

ASSOCIATION: Institut metallofiziki AN UkrSSR (Institute of Metal Physics, Ac.Sc., UkrSSR)

SUBMITTED: May 25, 1957

AUTHOR: Chernyy, V.G. SOV/126-8-2-8/26

TITLE: Investigation of a Nickel-chromium-aluminium-titanium Alloy Deformed in the Quenched Condition

PERIODICAL: Fizika metallov i Metallovedeniye, 1959, Vol 8, Nr 2, pp 205 - 210 (USSR)

ABSTRACT: The composition of the alloy investigated was 0.035% carbon, 19.55% chromium, 2.38% titanium, 0.59% aluminium, remainder nickel. Samples were homogenised at 1100 °C for 20 hours, held at 1080 °C for 1.5 hours and quenched in water. They were deformed at 80%. X-ray analysis showed that the intermetallic phase (α') present in the structure was face-centred cubic with a formula $Ni_3(Al,Ti)$.

Figure 1 shows the effect of temperature on the lattice distortion, the size of the particles of the intermetallic phase, lattice parameter and hardness. Figure 2 shows the effect of holding at 700 °C on the dimensions of the precipitated phase and hardness, Figure 3 shows the effect of temperature on the particle size for alloys after quenching and after deforming. The particle size in deformed samples is greater at 550 °C than that in quenched

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samples at 700 °C. The lattice parameter was 3.58A. During ageing the change in parameter of the solid-solution lattice is much greater for the deformed alloy than the quenched alloy (Figure 4) showing that there is fuller precipitation in the alloy after deformation. Figure 5 shows that the α' phase is detected much sooner in the deformed alloy (20 min) than in the quenched alloy (4 hrs) when heated at 700 °C. The hardness of the alloy after deformation is greater than that in the quenched condition because of the formation of submicroscopic inhomogeneities and possibly the precipitation of a second phase. There is an increase in hardness when the deformed alloy is heated at 600 - 700 °C because of precipitation of a large quantity of highly dispersed second phase. Figure 6 shows the effect of temperature on hardness. = Curve 1 for the as-quenched alloy, Curve 2 for the alloy after deformation.

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Investigation of a Nickel-chromium-aluminium-titanium Alloy Deformed in the Quenched Condition

There are 6 figures and 8 Soviet references.

ASSOCIATION: Institut metallofiziki AN USSR (Institute of Metal Physics of the Ukrainian Ac.Sc.)

SUBMITTED: March 6, 1958

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S/139/60/000/03/031/045
E073/E335

AUTHORS: Arbuzov, M.P., Krulikovskaya, M.P. and Chernyy, V.G.

TITLE: Study of the Process of Hardening of the Solid Solutions Nickel-chromium-aluminium and Nickel-chromium-tungsten

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, Nr 3, pp 170 - 174 (USSR)

ABSTRACT: In earlier work (Refs 1-3), the authors studied the processes of softening of nichrome and they elucidate the influence of some alloying elements on these processes. In this paper, the authors study the processes of hardening in alloys of a similar type. The experiments were carried out on two alloys, one containing 0.025% C, 19.55% Cr, 0.6% Al, rest Ni, the other containing 0.03% C, 21.04% Cr, 3.51% W, rest Ni. The concentration of the third element in at.% was practically equal for both alloys (1.25 at.% Al, 1.15 at.% W). The alloys were melted down and then forged into rods from which cylindrical specimens of 15 and 10 mm dia, 15 mm high, were produced. The specimens were homogenized at 1000 °C.

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The annealed specimens were subjected to plastic deformation by uniaxial compression to a degree of 5 to 80% by means of a 100-ton press. The authors studied the changes in the fine crystalline structure - Type II lattice distortions $\Delta a/A$ and the mosaic blocks D - and they also determined the real compression stresses σ and the hardness H_{R_A}. The results of X-ray analysis are given in Tables 2 and 3; the results of mechanical tests are given in Tables 4 and 5. In figure 1 the changes are plotted of the real compression stresses, the hardness, the magnitude of Type II distortions and of the mosaic blocks as a function of the degree of deformation. It was found that there is an analogy between the changes in σ, H_{R_A}, $\Delta a/a$ and D for both alloys. It was established that the main hardening

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